Site: Rice	**Overall Confidence Rating: medium**

Background: For 1994-1996, about 3 million acres of rice were harvested in the United States per year. AR, CA, LA, MS, and TX comprise 97% of the acreage[3] . About one third of the rice crop was treated with insecticides annually[4]. Organophosphates are used on about 15% of total rice acres and account for nearly one-half of the insecticides applied to rice.

Organophosphate	% Treated		# Applications		Rate (lb AI/A)		PHI (days)	
Pesticides	Max	Avg	Max	Avg	Max	Avg	Min	Avg
Malathion	4.2[1]	1.6[1]	---	1.1[1]	2[2]	1[1]	5[2]	7[2]
Methyl-parathion	8[1]	---	---	---	0.8[2]	---	1[2]	15[2]
Chlorpyrifos	<1[1]	<1[1]	---	1[1]	---	1[1]	---	---

Confidence Rating: H= high confidence = data from several confirming sources; confirmed by personal experience
M = medium confidence = data from only a few sources; may be some conflicting or unconfirmed info.
L = low confidence = data from only one unconfirmed source

Organophosphate Target Pests for Rice in the Mid-South (Primary pests controlled by the OP's)	
Major	Rice Stinkbug, and Grasshoppers
Moderate	none
Minor	Armyworm and Fall Armyworm

Major = 20+% of all OP usage on pest; Moderate = 5-20% of all OP usage on pest; Minor =<5% of all OP usage on pest

Organophosphate Target Pests for Rice in California (Primary pests controlled by the OP's)	
Major	Tadpole shrimp
Moderate	none
Minor	Rice leafminer, Armyworm, and Rice Stinkbug

Major = 20+% of all OP usage on pest; Moderate = 5-20% of all OP usage on pest; Minor =<5% of all OP usage on pest

Sources:

[1] EPA's Quantitative Use Analysis: chlorpyrifos (1987-1993), methyl-parathion (1996) and malathion (data from years not stated).
[2] EPA's Label Use Information System - 1998 Summary Report.
[3] National Agricultural Statistical Service, Grain and Feed 1998.
[4] US EPA proprietary data sources

Date: September 1998

Site: Rice
Region: California

Pest[1,2]	Organophosphate[1]	Efficacy[1] 111	Mkt[1]		Class	Alt. Pesticide List[1]	Efficacy[1]	Mkt[1]	Constraints of Alternatives
Timing: Postemergence									
Tadpole Shrimp (major)	malathion	---	med		O	copper sulfate[2,3]	---	high[6]	Crayfish and Rice seed midge larvae are other aquatic pests that are not listed as target pests on any pesticide label but are controlled incidentally by use of insecticides during the seedling stage. Carbaryl is registered for control of tadpole shrimp but not widely used. Copper may injure plants, build-up in the soil, and move into waterways. Copper sulfate is somewhat expensive but not prohibitive.[4]
	methyl -parathion	---	high		C	carbaryl	---	---	
Rice Stink bug and other Stink bugs (minor)	methyl-parathion	---	high						Lambda-cyhalothrin was registered for control of this pest on rice in 1997. Lambda-cyhalothrin is 2-3 times more expensive than methyl-parathion[4].
Rice leafminer (minor)	malathion	---	high[4,5]						To prevent plant damage, malathion should not be applied within 14 days of applying the herbicide propanil.[2]

ADDITIONAL INFORMATION:

SOURCES:

[1] Proprietary EPA market share information, data from 1994-1996.
[2] University of California Integrated Pest Management Guidelines for 1997: Rice
[3] The Biologic and Economic Assessment of Pest Management in Rice, USDA-National Agricultural Pesticide Impact Assessment Program. 1995
[4] Personal communication with Larry D. Godfrey, PhD, Entomologist at University of California at Davis. September 29, 1998.
[5] World Pest Infestation Database - Third Evaluation of the United States, 1997. Agricultural Services Limited.
[6] Proprietary EPA data source citing 1996 data.

Pest Importance: Major = 20+% of all OP usage on pest; Moderate = 5-20% of all OP usage on pest; Minor = <5% of all OP usage on pest
Efficacy Rating: Excellent = ☺ Good = ❍ Fair = ●
Market Share: High = use of OP represents 20+% of all insecticide usage on pest; Med = 5-20% of all usage on pest; Lo = <5% of all usage on pest
Insecticides: C = Carbamates; P = Pyrethroids; CH = Chlorinated Hydrocarbons; IGR = Insect Growth Regulators; B = Biological; O = Other pesticides

Site: Rice
Region: California

Date: October 6, 1998